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DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
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September 27, 1995

In Reply Refer To:
AESO/SE
2-21-95-F-399

Mr. Fred Trevey
Forest Supervisor
U.S. Forest Service
Coconino National Forest
2323 E. Greenlaw Lane
Flagstaff, Arizona 86004

Dear Mr. Trevey:

The U.S. Fish and Wildlife Service has reviewed the two Biological Assessment and Evaluation (BAE) reports prepared for the Windmill Allotment Grazing Permit issuance on the Coconino National Forest in Coconino and Yavapai Counties, Arizona. Your August 10, 1995, request for formal consultation was received on August 12, 1995. This document represents the Service's biological opinion on the effects of the proposed action on southwestern willow flycatcher (*Empidonax traillii extimus*) and its proposed critical habitat, in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. 1531 et seq.). In addition, this document provides our concurrence with your determination of effects to Mexican spotted owl (*Strix occidentalis lucida*).

This biological opinion and concurrence letter are based on information provided in the BAE for Mexican spotted owl (spotted owl) dated July 31, 1995, an August 22, 1995, letter updating information in the BAE for the spotted owl, the BAE for the southwestern willow flycatcher (flycatcher) dated August 10, 1995, a summary of the preferred management alternative for the Windmill Range Allotment dated September 11, 1995, telephone conversations between Service and Peaks Ranger District staff on September 15 and September 18, 1995, and other sources of information. The literature cited in this biological opinion does not represent a complete bibliography of all literature on the flycatcher or the effects of grazing on the flycatcher. A complete administrative record of this consultation is on file in the Service's office.

CONSULTATION HISTORY

The Service concurred on May 3, 1995, with the list of federally threatened, endangered, and proposed species provided by the Forest for the Windmill Allotment. An informal consultation

package regarding potential effects of the proposed action on spotted owls was submitted to the Service on July 31, 1995. A brief phone discussion between Forest and Service personnel occurred on August 1, 1995, regarding impacts of the proposed action on the flycatcher. Formal consultation for the Windmill Allotment was initially requested in your August 10, 1995, letter, and was received in our office on August 12, 1995. The 90-day information gathering period for this consultation would end on November 10, 1995, while the written opinion would be due to the Forest on January 4, 1996.

Forest personnel requested in the August 10, 1995, cover letter and in a subsequent meeting with Service personnel that the biological opinion be expedited in order to meet Forest deadlines for permit issuance as the grazing permit for the Windmill Allotment expires on December 31, 1995.

Early in 1995, the Regional Forester informed the Service that there were a large number of grazing permits that had to be issued by December 1995 for numerous allotments before existing permits expired. In order to process this large volume of permits, the Regional Forester and the Service jointly developed a programmatic BAE for grazing activities. Pursuant to this programmatic BAE, dated April 7, 1995, a Forest would not be required to obtain concurrence from the Service for grazing permit issuance for certain species if their determination of effects to the species or its critical habitat was no effect or may affect, not likely to adversely affect, and if criteria in the programmatic BAE were met. On May 5, 1995, the Service concurred with conditions as requested in the BAE, by letter from the Service's Regional Director to the Regional Forester, Region 3.

Because the grazing permit to be issued for the Windmill Allotment is due to expire in December 1995, section 7 consultation for the project is subject to the provisions of the programmatic BAE, and determinations by the Forest of no effect or may affect, not likely to adversely affect do not require further Service concurrence. The Forest determined that the proposed action may affect, but is not likely to adversely affect the spotted owl or its critical habitat. The Forest also determined that the proposed action may affect, but is not likely to adversely affect the flycatcher and would have no effect on proposed critical habitat within the Windmill Allotment. While no further concurrence was necessary from the Service, pursuant to the programmatic BAE, the Forest asked for concurrence with their determinations for the spotted owl and its critical habitat and requested that formal consultation be completed for the proposed action and potential effects to the flycatcher and its proposed critical habitat. Additional information was received from the Forest on September 14, 1995, explaining the preferred alternative for which consultation was requested. Subsequent telephone conversations have occurred between Forest and Service personnel on September 15 and September 18, 1995, for clarification of documents submitted by the Forest.

It should be noted that the Forest completed previous section 7 consultations in this area for Arizona cliffrose (*Purshia subintegra*) on December 30, 1992, and February 3, 1995 (2-21-92-F-732 and 2-21-92-F-500, respectively), Mexican spotted owl on February 3, 1995, (2-21-92-F-900), the flycatcher on February 3, 1995 (2-21-92-F-500), and spikedace (*Meda fulgida*), Gila topminnow (*Poeciliopsis occidentalis*), Gila trout (*Oncorhynchus gilae*), Colorado squawfish

(*Ptychocheilus lucius*), and razorback sucker (*Xyrauchen texanus*) on June 6, 1995 (2-21-92-F-500).

BIOLOGICAL OPINION

It is the Service's biological opinion that the action as proposed will not jeopardize the continued existence of the flycatcher or adversely modify or destroy its proposed critical habitat. While the Service does not believe that the action would jeopardize the flycatcher, we do not concur with the Forest's determination of may affect not likely to adversely affect, but believe the proposed action is likely to adversely affect the flycatcher. Similarly, we do not concur with a no effect determination for proposed critical habitat, but believe the proposed action is likely to have some level of adverse effects on that habitat.

The Service is in concurrence with the Forest's determination of may affect, not likely to adversely affect for the spotted owl and its critical habitat. Please see the concurrence section at the end of this document for further discussion of the spotted owl.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is issuance of a two-year grazing permit for the Windmill Allotment. This action is the preferred alternative of a Environmental Assessment (EA) prepared for the project. The summary of the EA provided to the Service indicates that grazing during this two-year period would follow the present permit's terms and conditions with some modifications. The proposed two-year permit would allow the permittee to continue use of the Windmill Allotment while a more comprehensive analysis and ecosystem management plan are completed. It is anticipated that a longer-term permit would then be issued following completion of a more detailed review process.

According to information in the BAE, the Windmill Range Allotment consists of 248,792 acres within three ranger districts of the Coconino National Forest (Forest). The allotment also incorporates State trust lands. Vegetation communities present on the Windmill Range Allotment include ponderosa pine (*Pinus ponderosa*), piñon/juniper (*Pinus/juniperus* spp.), mountain meadow, transitional, chaparral, desert grassland, desert scrub, and riparian. The ponderosa pine community is dominant in terms of acreage, with a total of 104,166 acres in the allotment, followed by desert grassland (87,526 acres), piñon/juniper (27,941 acres), desert scrub (11,635 acres), transitional (7,281 acres), chaparral (6,498 acres), mountain meadows (3,745 acres), and riparian (910 acres).

As proposed, cattle and/or horse grazing would be allowed year-round on the Windmill Allotment. A total of 1,097 cattle are permitted for forest lands and 160 for State lands on the Winter Range Division. During the summer months, there are 1,097 cattle on Forest lands and 160 on State lands in the Mill Park and Munds Pocket/Foxboro Divisions. The BAE states that appropriate Forest Plan standards and guidelines will be included in the grazing permit.

The Windmill Allotment occurs over the Mormon Lake, Peaks Ranger, and Sedona Ranger Districts of the Forest. The proposed action would include maintenance of existing features, including barbed wire and electric fences, cattleguards, stock tanks, pipelines, and holding areas. In addition, the Oak Creek Riparian Pasture fence would be repaired. The Forest will continue efforts to develop a voluntary agreement with a private landowner for the Spring Creek fence, and will continue working with equestrian groups in Sedona to install horse gates and signage on gates and fences.

For management purposes, the Windmill Allotment has been divided into the Munds Pocket/Foxboro, Mill Park, and Winter Range Divisions. The Munds Pocket/Foxboro and Mill Park divisions are used for summer grazing, while the Winter Range Division is used for winter grazing. The Munds Pocket/Foxboro Division consists of 52,302 acres on the Mormon Lake Ranger District. From north to south, this area extends from James Canyon to the Coconino County line. The northern portion is referred to as the Munds Pocket area, and the southern portion as the Foxboro area. From east to west, this portion of the allotment extends from the rim of Oak Creek Canyon to the Fain Mountain, Casner Park, and Pinewood areas.

The Munds Pocket Herd consists of 200 to 250 animals grazing in a five-pasture, deferred-rest rotation system in which each pasture is grazed for 30 to 60 days between June 1 and October 31. The Foxboro herd consists of 250 animals grazed in a seven-pasture, deferred-rest rotation system that uses each pasture for 30 to 45 days between May 1 and November 30.

The Mill Park Division consists of 66,648 acres on the Peaks Ranger District and is used for summer grazing. From north to south, the Mill Park Division extends from the southern portions of Rogers Lake into the Sycamore Canyon and Red Rock/Secret Mountain Wilderness Areas. The western boundary is near Mooney Mountain, while the eastern boundary follows U.S. Highway 89 south to the rim of Oak Creek Canyon. Contained within this area is 9,467 acres of State trust lands which are interspersed with Forest lands in a checkerboard configuration. The Mill Park Herd, consisting of 635 animals, grazes within the Mill Park Division using a seven-pasture, deferred rest-rotation system in which each pasture is used for 20 to 40 days between June 1 and October 31.

The Winter Range Division consists of 129,842 acres on the Sedona Ranger District, and is used for winter grazing. The western boundary of this division is the Verde River and Sycamore Canyon. There are 8,023 acres of State trust lands in the southwestern portion of this division. An allotment management plan was updated in 1988 for the Winter Range Division and was designed to improve the distribution of areas used by livestock, improve wildlife habitat, and reduce conflicts with uses on adjacent private lands. The Forest noted that livestock distribution and forage trends have improved with changes made in the allotment management plan.

During both summer and winter grazing periods, the Forest commits to several management practices within the BAE as follows:

1. The Gyberg, Duff Flat, and Sheepshead Pastures will not be grazed from April 1 to July 31 to avoid disturbing flycatcher habitat during the breeding season.
2. All holding pastures will be used to hold cattle for 10 days or less.
3. Riders will be sent along the Mooney Trail one to two days after cattle are driven up from winter to summer range to move any remaining cattle out of the north end of the Black Tank Pasture. Similarly, riders will be sent down the Mooney Trail one to two days after cattle are driven from summer to winter range to move any remaining cattle out of the upper end of Spring Creek.
4. The grazing system will be adjusted annually to meet the goals and objectives of management on the allotment.
5. Salt will be placed in areas of good feed and greater than one-quarter mile from any permanent water source. Both proper salt placement and hard riding will be used to help alleviate excessive cattle congregation and related resource degradation.
6. Elk/livestock forage utilization monitoring will be continued to develop information for future management decisions.
7. Monitoring of Arizona cliffrose (*Purshia subintegra*) in the Gyberg Pasture will continue for the life of the permit regardless of livestock use of this pasture. (The Gyberg Pasture has been scheduled for emergency use only).
8. Compliance with the terms and conditions of the permit will be strictly enforced, including the grazing scheme, contingencies for drought conditions, monitoring agreements, and cost-sharing agreements for any structural range improvements.

During the winter, livestock grazing on the Winter Range Division will follow the grazing schedule on page 19 of the BAE for the flycatcher. This schedule is incorporated herein by reference. The Mill Park Commercial herd will use a 14-pasture deferred-rest rotation schedule that uses each pasture for 20 to 60 days between November 1 and May 31. The Foxboro Herd of 250 animals will be grazed in the Foxboro Division in a seven-pasture deferred-rest rotation system using each pasture for 20 to 60 days between December 1 and April 30. The Munds Pocket Herd of 200 to 250 animals will be grazed on the D.K. and Malpais Units and on State lands in a five-pasture deferred-rest rotation system using each pasture for 20 to 60 days between November 1 and May 31. The Bull Herd of 80 to 100 animals will be grazed for 75 days each on the Cornville and State Pastures between October 15 and March 15. It should be noted that the State Pasture is administered by the State and permitted separately from the Windmill Allotment.

In addition, the Forest commits within the BAE to several management practices for winter grazing as follows:

1. Grazing rotations will be adjusted to ensure that spring deferment occurs as much as possible on the winter range.
2. Cows culled in the fall will either be shipped to market with sold calves or combined with one of the other herds so that a fifth herd is not formed.
3. The number of heifers will be maintained at 70 to 100 head. When they calve, they will be combined with the Mill Park Commercial Herd.
4. When necessary, the three cow herds may be combined on some pastures to reduce the number of days the Foxboro winter pastures are grazed.
5. The Oak Creek Riparian and Lower Oak Creek/White Flat Pastures will not be grazed during the two-year permit period.

STATUS OF THE SPECIES

The southwestern willow flycatcher is one of several subspecies of willow flycatchers. It is a small passerine bird (Order Passeriformes; Family Tyrannidae) approximately 5.75 inches long and has a grayish-green back and wings, whitish throat, light olive-grey breast, and pale yellowish belly. Two whitish or buff wingbars are visible, the eye ring is faint or absent. The upper mandible is dark, the lower is light grading to dark at the tip. The song is often needed to distinguish the southwestern subspecies in the field from other forms of the species. Flycatchers are riparian obligates, nesting in riparian thickets associated with rivers, streams, and other wetlands where dense growth of willow (*Salix* sp.), *baccharis*, buttonbush (*Cephalanthus* sp.), boxelder (*Acer negundo*), tamarisk (*Tamarix* sp.), or other plants are present, often with a scattered overstory of cottonwood (*Populus* sp.). The flycatcher typically nests near surface water or saturated soil. At some nest sites surface water may be present early in the breeding season with only damp soil present by late June or early July (Muiznieks *et al.* 1994, Sferra *et al.* 1995). The water table must be close enough to the surface to support riparian vegetation.

The flycatcher is a neotropical migrant breeding in the southwestern U.S. and migrating to Mexico, Central America, and possibly northern South America during the non-breeding season. The historical range of the flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern (Sonora and Baja) Mexico (Unitt 1987).

The Service included the flycatcher on its Animal Notice of Review as a category 2 candidate species on January 6, 1989 (USFWS 1989a). The flycatcher was proposed for listing as endangered, with critical habitat, on July 23, 1993 (USFWS 1993). A final rule listing the flycatcher as endangered was published on February 27, 1995 (USFWS 1995). The listing became effective on March 29, 1995. The states of Arizona, California, and New Mexico also list the flycatcher as endangered (Arizona Game and Fish Department 1988, California Department of Fish and Game 1992, New Mexico Department of Game and Fish 1988).

Following the review of comments received during the public comment period, the Service deferred the designation of critical habitat, invoking an extension on this decision until July 23, 1995. A moratorium on listing actions under the ESA passed by Congress in April 1995 required the Service to cease work on the designation of critical habitat until such time as the moratorium is lifted.

Recent surveys have documented breeding populations of the flycatcher in three states (California, Arizona, and New Mexico) of the original seven-state range. Statewide surveys in Arizona during 1994 documented flycatchers at 21 of 322 sites surveyed. It is estimated that a total of 199 territorial males were found at the 21 extant locations (Sferra *et al.* 1995).

Life History

The flycatcher is an insectivorous species, foraging within and above dense riparian vegetation, taking insects on the wing or gleaning them from foliage (Wheelock 1912, Bent 1963). No information is available on specific prey species.

Flycatchers begin arriving on breeding grounds in late April and May (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Maynard 1995, Sferra *et al.* 1995). Migration routes are not completely known. However, flycatchers, including subspecies *E.t. brewsteri* and *E.t. adastus*, have been documented migrating through drainages in Arizona that do not currently support breeding populations, including upper San Pedro River (BLM, unpubl. data), Colorado River through Grand Canyon National Park (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994), lower Colorado River (Muiznieks *et al.* 1994, Sferra *et al.* in prep.), and Verde River tributaries (Muiznieks *et al.* 1994).

Flycatchers of the genus *Empidonax* rarely sing during fall migration, so that a means of distinguishing subspecies without a specimen is not available (Blake 1953, Peterson and Chalif 1973). Flycatchers winter in Mexico, Central America, and perhaps northern South America (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994) and have been reported to sing and defend winter territories in Mexico and Central America (Gorski 1969, McCabe 1991).

Flycatchers begin nesting upon arrival at suitable breeding areas in late May and early June and fledge young from late June through mid-August (Willard 1912, Ligon 1961, Brown 1988, Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Muiznieks *et al.* 1994, Maynard 1995). Flycatchers typically lay three to four eggs in a clutch (range = two to five). The breeding cycle, from laying of the first egg to fledging, is approximately 28 days. Eggs are laid at one day intervals (Bent 1963, Walkinshaw 1966, McCabe 1991); they are incubated by the female for approximately 12 days; and young fledge approximately 12 to 13 days after hatching (King 1955, Harrison 1979). Flycatchers typically raise one brood per year but have been documented raising two broods during one season (Whitfield 1990). Flycatchers have been documented renesting after nest failure (Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994).

Data on survival rates and longevity of the flycatcher are not available. Walkinshaw (1966), who studied the *E. t. traillii* in Michigan, estimated that 40.9 percent of the males at his study site returned to breed for two years, 22.7 percent returned for three years, 13.6 percent returned for four years, and 4.5 percent returned during their fifth year. Return rates for females were substantially lower. Only 22.6 percent returned to breed for one year. These data are consistent with survival rates for other passerines (Gill 1990) and suggest that the lifespan of most flycatchers probably is two to three years. Whitfield (pers. comm.) has documented a 30 percent return rate for flycatcher juveniles reared on the South Fork of the Kern River in California.

Population Dynamics

Population size: Current estimates for total numbers of remaining flycatchers are 500 or fewer nesting pairs rangewide (Unitt 1987, USFWS 1995). Approximately 100 territorial males are estimated to occur in southern California, with most nesting groups occurring in three drainages (Whitfield 1993, Griffith and Griffith 1994). Approximately 119 territorial males were located during statewide surveys in Arizona in 1994 (Sferra *et al.* 1995). Approximately 120 territorial males were located in New Mexico during statewide surveys in 1994 (Parker and Hull 1994, Maynard 1995). A small number of territorial males (≤ 5) has been documented in both southern Utah and southwestern Colorado during 1993 and 1994 surveys; however, breeding has not been confirmed in those states (Sogge 1995a). Rangewide, most nesting groups are comprised of five or fewer pairs.

Population stability: Flycatcher breeding populations are small and unstable. The Service believes that at current population levels, and with continuing threats, extinction of this species is foreseeable. Flycatchers are absent from many previously occupied areas or are present in reduced numbers (Hubbard 1987, Unitt 1987, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Sferra *et al.* 1995). Former populations in Arizona on the lower Salt River, Santa Cruz River, and lower Colorado River near Yuma have been extirpated. Small groups of one to several flycatcher territories have been detected on the Santa Maria River, lower San Pedro River, Verde River, upper Tonto Creek, upper Salt River, upper Gila River, Little Colorado River, and the Colorado River in Marble Canyon (Sogge *et al.* 1993, Sogge and Tibbitts, 1994, Muiznieks *et al.* 1994, Sferra *et al.* 1995).

Nesting groups monitored on the Colorado River in the Grand Canyon have declined since monitoring began in 1984 (Sogge 1995b). In 1992, when comprehensive nest monitoring was initiated, two pairs were present, with only one establishing a nest. That nest successfully fledged three flycatchers (Sogge and Tibbitts 1992). In 1993, one breeding pair, one male with two females, and six unpaired males were detected. Three nests were found, all of which were parasitized by the brown-headed cowbird (cowbird) (*Molothrus ater*). None were successful in rearing flycatchers (Sogge *et al.* 1993). Four pairs and one unpaired male occupied the Grand Canyon in 1994. Nine nests were attempted, at least four of which were parasitized by cowbirds. All nesting attempts failed (Sogge and Tibbitts 1994). In summary, since 1992, nine pairs of flycatchers in the Grand Canyon have made 13 nesting attempts, one of which was successful in fledging three flycatchers.

A similar trend has been observed in the Verde Valley at Clarkdale where four pairs of flycatchers were first observed in 1992. In 1993, two pairs were present, one nest was documented, and it contained a single cowbird nestling (Muiznieks *et al.* 1994). In 1994, two pairs and one unpaired male were present. Two nests were detected, one of which successfully fledged two flycatchers, the other fledged a single cowbird (Sferra *et al.* 1995). Data from 1995 indicates that two unpaired males occupied the Clarkdale site (Sogge 1995c).

In California along the Kern River, the total flycatcher population declined from 44 to 27 pairs between 1989 to 1993. During that same period cowbird parasitism rates between 50 and 80 percent were documented (Whitfield 1993). A cowbird trapping program initiated in 1992 has reduced cowbird parasitism rates to ≤ 10 percent and appears to have stabilized population numbers at the Kern River.

Status and Distribution

Reasons for listing: The flycatcher was listed as endangered in response to documented declines in both population size and amount of historic range occupied and in response to documented loss, modification, and fragmentation of riparian habitat within the flycatcher's range (USFWS 1993, USFWS 1995). Critical habitat was proposed to provide additional protection for areas, occupied and unoccupied, necessary for the survival and recovery of this species.

Rangewide trend: Flycatcher populations are small and unstable. Rangewide monitoring continues to document declines in some locations. Some populations have stabilized as a result of cowbird trapping programs.

New threats: Additional habitat losses likely include both small- and large-scale losses of the same types as known to date (i.e., habitat loss, fragmentation, and modification). The Service expects that cowbird parasitism incidents will vary spatially and temporally as a function of local cowbird population dynamics and local changes in the extent of riparian habitats.

Proposed critical habitat for the flycatcher in the project area includes portions of the Verde River, Peck's Lake, Tavasci Marsh, all associated side channels, backwaters, pools, and marshes, and all areas within 100 meters of such surface water, including all areas with potential nesting habitat or where potential habitat may become established.

Numbers of individuals/populations in the action area affected: There are no flycatchers within the Windmill Allotment. Observations of flycatchers have been made immediately adjacent to the project area at two locations. The first location is 1.2 miles from the allotment boundary at the Tuzigoot Bridge. Surveys conducted at this site in 1993 documented an adult flycatcher feeding a fledging cowbird. In 1994, surveys documented one nest with two flycatchers fledged and a second nest with one cowbird fledged. Attempts to survey the site in 1995 had only limited success as the private landowners refused access to surveyors. However, it is known that two territories were established, and that a third territory known from 1994 was not occupied during the 1995 season (Sogge 1995c).

The second site, along Dry Beaver Creek, was surveyed in 1993, and resulted in the detection of one singing male. However, follow-up surveys did not relocate this bird. It was concluded that either the male was a migrant or had vacated the site after failing to attract a mate.

Sensitivity to change: The flycatcher is highly sensitive to change in this area as a result of the small population size, small size of the riparian habitat occupied, and lack of suitable habitat in immediately surrounding areas for population movement or expansion. As noted within the BAE, currently suitable habitat within the allotment is limited to a one-half mile portion of Sheepshead Canyon in Sheepshead Pasture. Potential habitat exists along Spring Creek. Proposed critical habitat occurs along the Verde River from Sycamore Canyon to the Tapco area on the southwestern boundary of the allotment. Surveys conducted along Dry Beaver Creek, Spring Creek, West Fork Oak Creek, and Sheepshead Canyon have failed to detect any flycatchers.

The extent of riparian habitat, its distribution, continuity, and species composition have been substantially altered in the Southwest (Phillips *et al.* 1964, Carothers *et al.* 1974, Rea 1983, Johnson and Haight 1984, Katibah 1984, Johnson *et al.* 1987, Franzreb 1987, Unitt 1987, General Accounting Office 1988, Szaro 1989, Dahl 1990, State of Arizona 1990). Changes in the extent and composition of riparian habitat decreases the suitability and carrying capacity for flycatchers, thereby depressing the numbers of flycatchers that can occupy an area. These effects have resulted in a contraction of the range occupied by the flycatcher, a reduction in the number of flycatcher populations rangewide, and isolation of flycatcher populations potentially changing historical emigration/immigration patterns and severing genetic exchange among populations.

Resilience: The resilience of habitat and the flycatcher are relevant aspects of the species' survival. The flycatcher has declined in both the extent of range occupied and population size as a result of habitat loss, modification, and fragmentation, and cowbird parasitism. The proposed action has the potential to alter existing occupied and suitable habitat and increase cowbird parasitism. At a regional scale, habitat fragmentation will be increased incrementally if additional losses and/or modification of occupied or suitable habitat along the Verde River, Dry Beaver Creek, or Sheepshead Canyon are sustained. These factors, combined with the small size of the flycatcher population in the project area, indicate that this species' resilience to the disturbances associated with the proposed action is low.

Recovery rate: The recovery rate for this breeding population will be a function of local population dynamics (i.e. total population size, annual reproductive success and mortality rates, and rates of dispersal from other breeding locations) and habitat suitability. Because only one local population is known and is small in size (Sogge 1995c), the recovery rate for this location is anticipated to be very slow.

ENVIRONMENTAL BASELINE

The environmental baseline defines the current status of the proposed species and its habitat to provide a basis for assessing the effects of the action now under consultation. While it is clearly focused on conditions in the action area, it is important to include in this definition the status of

the listed species throughout its range as well as in the action area. Any evaluation of the effects of the action must be made in the context of the overall species' status.

The environmental baseline is developed using past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. A summary of status information for the species from outside the action area also forms a part of the environmental baseline.

That portion of the Verde River between Sycamore Canyon and just downstream of Cornville roughly parallels the western border for the Windmill allotment. Much of the Verde River above Tapco is characterized by a narrow flood plain at the bottom of a steep-walled limestone canyon, with a primarily medium-sized cobble to small boulder substrate. Just above Tapco, the flood plain widens and the substrate consists primarily of river-washed gravel and sand deposits. Above Tapco, the flood plain generally supports only a narrow band of riparian vegetation. However, as the floodplain broadens below Tapco, the width of the vegetated riparian corridor increases and supports a high density of woody tree and emergent species (Sullivan and Richardson 1993).

The portion of the Verde River between Sycamore Canyon and just downstream of Cornville is part of the Sycamore Creek, Upper Verde River, and Oak Creek watersheds. Land use within the Coconino, Prescott, and Kaibab National Forests includes timber harvesting, recreation, and grazing. In addition, private land use within these watersheds that influences the riparian community includes the towns of Clarkdale, Jerome, and Cornville. Historical land use practices date back to the 1800s, with mining activities beginning in earnest in 1876. The first claim was filed in 1877 near Jerome, and in 1883, the United Verde Copper Company was formed to smelt copper ore from the United Verde Mine in Jerome. Between 1880 and 1890, the United Verde and Pacific Railroad was constructed. This train route is currently in use as a scenic train ride for tourists between Clarkdale and Perkinsville. Clarkdale was built in the early 1900s to serve the employees and management of the United Verde Copper Company. The Clarkdale smelter operated from 1912 to 1953. Ore from the United Verde Mine was exhausted by the end of the 1930s (Sullivan and Richardson 1993).

Historical land use practices of copper mining, grazing, wood cutting, and sand and gravel operations along the Verde River have adversely impacted the riparian corridor. During the active copper mining period, woody vegetation on the surrounding hills was cut for fuel and lumber. Some of the remaining woody vegetation is stunted from the air pollution caused by the smelter before it closed (Ohmart 1979). Sand and gravel operations on the terraces adjacent to the active channel and downstream of Tapco have resulted in changes in channel morphology and removal of vegetation. Removal of flood plain materials may have decreased the stability of the terraces, increasing the opportunity for erosion and decreasing water quality. Alterations in channel morphology may have also increased the potential for severe bank erosion on the outside bank opposite of the mining operations (Sullivan and Richardson 1993).

In 1989, the Environmental Protection Agency issued compliance orders under the authority of Section 404 of the Clean Water Act to four sand and gravel operators on the Verde River within the proposed project area. One company has since filed for bankruptcy protection under Chapter 11. Two companies voluntarily complied and removal and restoration plans were developed in coordination with the Service and the Arizona Game and Fish Department (AGFD). One company did not respond. This case is currently being pursued through the Department of Justice (Sullivan and Richardson 1993).

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986, the EPA is conducting a preliminary assessment of the Verde Mine site to determine if site conditions are severe enough to warrant EPA's further involvement in the Superfund process (James 1992). The three primary areas of potential hazardous substance deposition which have been identified are the tailings pond adjacent to Tuzigoot Monument, Bitter Creek drainage, and the mill tailings pile. The latter is located 80 feet over the Verde River outside of the riparian corridor on the west bank upstream of the Peck's Lake diversion dam (Sullivan and Richardson 1993).

The 116-acre tailings pond contains approximately four million tons of wastes generated by a concentrator used between 1927 and 1952. It is of concern due to possible leaching of contaminants into the Verde River and because the area is readily accessible to the public. The mill tailings pile contains waste from on-site smelting operations. Bitter Creek receives metal bearing acid mine drainage from various mines and tunnels within the western portion of the watershed. In addition to the presence of large quantities of hazardous substances at this site, other significant hazardous factors include leaching of metals into surface water and potentially ground water and the presence of fisheries and sensitive environments associated with the Verde River.

Of the ephemeral streams in the study area, only Bitter Creek provides water of unacceptable quality for irrigation, recreation, warm and cold-water fisheries and wildlife habitat (Owen-Joyce and Bell 1983). Water samples from Bitter Creek have exceeded State surface water quality standards for sulfate, dissolved solids, copper, zinc, magnesium, iron, and cadmium (Baldys 1990, ADWR 1990). The source of these metals is the Phelps Dodge Verde Mine site. These concentrations were attenuated through dilution downstream through Bitter Creek and the rapid precipitation of heavy metals. However, metal discharges have affected the aquatic community in the Verde River as evidenced by a reduction in primary productivity of periphyton (ADHS 1983). This could have an adverse impact on aquatic organisms and terrestrial wildlife species which rely on these aquatic species as a food base.

More recent ambient water samples from the mouth of Bitter Creek indicate the metals are elevated, but only sporadically exceed surface water standards (ADEQ 1991). However, most of the flow at this monitoring site is ground water pumped by the Phoenix Cement Plant and may not accurately reflect flow from the mine. In addition, Bitter Creek and its tributaries are ephemeral; thus, the potential discharge of metals from Bitter Creek into the Verde River will only occur in response to precipitation runoff events.

Chemical analysis of the mill tailings pile near Bitter Creek have shown high concentrations of sulfate, iron, copper, barium, lead, chromium, cadmium, and selenium. Berms were subsequently erected to prevent runoff from reaching the Verde River. However, the berms have broken on occasion allowing discharge into the Verde River. Water samples taken downstream of the tailings have not indicated any pollution that can be directly attributed to tailings runoff (NACOG 1979).

Other land use activities directly in or adjacent to the active flood plain which have influenced the riparian corridor include agricultural activities in the vicinity of the Tapco Substation and the Peck's Lake diversion dam located just upstream of Bitter Creek. In addition to reducing wildlife habitat in the upland areas, agricultural development may introduce pesticides and fertilizers through runoff into the riparian corridor. In contrast to the large irrigation ditches downstream in the Verde Valley, a minor irrigation diversion above Tapco does not affect the free-flowing character of the Verde River. The water is diverted out of the river into a ditch which leads to a private land parcel (Sullivan and Richardson 1993).

Recreation, including hiking, birding, fishing, horseback riding, scenic touring, off-road vehicle use, and rafting occur along the Verde River. The BAE indicates that the nearest Forest lands are located 1.25 miles from the nest sites, and do not pose a threat of disturbance to nesting and breeding individuals. Rafting on the Verde River could result in rafters floating past the nest sites on private land, or perhaps docking near the nest site, and rafters docking near the bridge during the critical breeding season could disturb nest sites. However, the BAE notes that flows are generally too low for rafting on this portion of the Verde River between April 1 to July 31 except during flash runoffs from monsoons.

Similar recreational activities occur in and along proposed critical habitat and adjacent to potential flycatcher habitat at Spring Creek. The BAE states that recreational activities are not modifying the structure or composition of riparian vegetation within proposed critical habitat. At Spring Creek, vehicles and camp sites can cause soil compaction which could lead to slowing or prevention of plant growth. Recreational activities in this area are concentrated around the upper portion of Spring Creek near the road crossing. The lower portion of Spring Creek experiences low levels of use due to its limited accessibility.

Grazing has had various impacts on portions of the Coconino, Prescott, and Kaibab National Forests which influence the riparian corridor on this portion of the Verde River. Overgrazing in the early 1900s contributed to a decline of native vegetation and an alteration in natural succession, increased soil erosion, accelerated storm runoff, and unhealthy instream sediment loads, particularly in areas with a steep slope, and severe erosion hazard potential. Overgrazing and cattle trails also resulted in extensive erosion along the banks of the Verde River (NACOG 1979).

It has been estimated that the regeneration of cottonwood and other riparian hardwood trees along the Verde River essentially ceased with the commencement of unrestricted cattle grazing around the turn of the century (Ohmart 1987). Analysis of vegetative changes along the Verde River

between Tapco and Tuzigoot National Monument indicate that during the 1940s this portion of the riparian corridor supported few trees or shrubs (Averitt *et al.* 1990). The number of trees and tree canopy cover has significantly increased to the present. However, there is a lack of natural woody riparian revegetation occurring. Young trees found through this area are dominated by velvet mesquite (*Prosopis velutina* var. *juliflora*) and the non-native saltcedar and tree-of-heaven (*Ailanthus altissima*).

Within the proposed project area, the Prescott National Forest manages portions of the Antelope Hills and Geronimo Allotments. The BAE indicates that the Geronimo Allotment was divided into 13 pastures in order to avoid grazing during the flycatcher breeding season, but that livestock on the Antelope Hills Allotment could graze the Verde River during the breeding season, and that cowbirds associated with these cattle would have access to the riparian corridor along the Verde River. The breeding site at Tuzigoot Bridge is located two miles from the nearest segment of riparian habitat on the Antelope Allotment. The BAE further indicates that livestock are known to graze along the Verde River approximately three miles from the nest.

Following the removal of cattle grazing at Tavasci Marsh, vegetation conditions are improving. In addition, the Service and the AGFD in cooperation with a private land owner have developed a Partners for Wildlife project to restore Tavasci Marsh to its former condition. Installation of a water control structure has just been completed.

The above activities have reduced the quantity of suitable habitat for the flycatcher through reduction of riparian vegetation and surface water, and other factors. Loss and modification of nesting habitat is one of the primary threats to this species (Phillips *et al.* 1964, Unitt 1987, Service 1993). The extent of this loss is reflected by the extirpation of the species from large portions of its former range, and the small sizes of remaining populations.

Within 1.0 and 1.2 miles of the proposed project area there is suitable and occupied flycatcher nesting habitat at Dry Beaver Creek and the Tuzigoot Bridge, respectively. In May of 1993, an unpaired or migrant male (unconfirmed) was observed singing in a dense patch of willows at Dry Beaver Creek. The bird was detected on a 75-100 meter (m) long, 5 to 25 m wide linear island that splits Dry Beaver Creek. The island was a patch of willow, sycamore, and ash, and approximately a half hectare (ha) in size. Willows were mostly under 5 m in height, with sycamore and ash up to 9 m in height. The bird was observed singing and foraging for approximately 12 minutes; however, a second bird was not detected. A campsite and swimming hole lie just downstream of the site, and evidence of recent cattle grazing was abundant just upstream of the site. Flycatchers were not detected during a second site visit in June 1993.

The Tuzigoot Bridge is a two-lane, 123 m bridge. At the west end, a 56 m stretch of the bridge bisects a 1.5 ha patch of tall, dense, multi-storied riparian habitat with a dominant mosaic of cottonwood, boxelder, willow, tamarisk, cattails (*Typha* spp.). This patch of habitat appears to be maintained in part by a small spring outflow at the upstream end of the patch.

This site was surveyed in 1992, 1993, 1994, and 1995. The known breeding population at the site has declined in numbers since it was discovered. Survey results of this site indicated that four territorial males were present in 1992, two and possibly three territories were noted in 1993, three territories were present in 1994, and two territorial males were initially present in 1995. Results of the 1995 surveys indicated that one male was lost, either through movement to another breeding area or due to mortality. The second male was seen with another flycatcher, suggesting that a pair had formed. However, due to access restrictions to the site, it was not possible to determine if a nest had been constructed, or if any young were present (Sogge 1995c).

Uses of the nesting area are primarily related to traffic and recreation. Between May 12 and July 19, 1995, a mean of 401 motor vehicles per day crosses the Tuzigoot Bridge. It was the intention to determine during 1995 surveys the nature and extent of flycatcher movements across the bridge as well as the immediate effects of traffic on willow flycatcher movement and behavior. However, no flycatchers established territories that included the bridge, so that this information could not be obtained (Sogge 1995c).

Sogge (1995c) indicates that there is data indicating a possible correlation between increased recreational activity and decreased abundance of riparian birds, and that flycatchers were one of seven species negatively associated with campgrounds in riparian areas in northern Utah. However, there is little recreational use of the bridge itself or within the National Park Service right-of-way adjacent to the bridge other than the occasional pedestrian. Fishermen were also present in the area, parking below the bridge and fishing from the east shore. Sogge (1995c) concluded that there is currently little disruptive human recreation at the west end of the Tuzigoot Bridge, and that camping and fishing on the other side of the Verde River do not appear to affect the flycatcher.

An additional disturbance factor at the site is the presence of cowbirds. Sogge (1995c) noted that cowbirds were present during virtually all site visits. Cowbird courtship behaviors were observed. Summer tanagers (*Piranga rubra*), northern orioles (*Icterus glabula*), and yellow-breasted chats (*Icteria virens*) were observed chasing cowbirds from their territories. Cowbirds parasitized at least two Tuzigoot Bridge flycatcher nests in 1993 and 1994, resulting in a further decrease in productivity of a population of flycatchers that is already small. Sogge (1995c) concluded that continued threats from cowbird nest parasitism are anticipated, and could result in the eventual extirpation of flycatchers at this site.

EFFECTS OF THE ACTION

The effects of cattle grazing on the flycatcher include nest disturbance, vegetation loss, trampling, and cowbird parasitism. Because cattle will not actually be grazing within known occupied habitat, the direct loss of nests is not relevant to this opinion.

Suitable habitat within the Windmill Allotment includes a one-half miles stretch at Sheepshead Canyon in Sheepshead Pasture. Approximately 12 to 15 years ago, Sheepshead Canyon became almost completely inaccessible to cattle, and riparian vegetation has shown some recovery,

according to the BAE. This area has a low gradient, and includes boggy areas in which willows are abundant. The dense willows, standing water, and saturated soils make the habitat suitable for the flycatcher. No historical or current records of flycatchers exist for this area. Grazing occurs in this area along a watergap and does not occur consistently each year. This area is scheduled for emergency grazing only, and in an emergency would be used for two weeks per year outside of the breeding season for the flycatcher.

With respect to the Dry Beaver Creek site, it should be noted that a separate biological opinion (Service File No. 2-21-92-F-500) was provided for the Apache Maid Allotment in February 1995. Impacts of cattle grazing on the Dry Beaver Creek site were addressed within that opinion, which is incorporated herein by reference. The Service believes that any additional protective measures for this area would be redundant with those contained in that opinion. For this reason, this opinion will focus primarily on effects to the Tuzigoot Bridge site.

The Forest has noted that potential habitat is also present along the Spring Creek drainage in the Holly Springs Pasture. No flycatchers were observed in this area during 1993 surveys. This strip of potential habitat is divided by a private land parcel. Both the upper portion (one-eighth mile) and the lower portion (one-half mile) are excluded from livestock grazing.

There are seven miles of proposed critical habitat on the Windmill Allotment along the Verde River from its confluence with Sycamore Canyon downstream to the Tapco area. The primary pastures of concern with respect to proposed critical habitat are Duff Mesa, Duff Flat, Gyberg, and Cornville. The Duff Mesa Pasture would be grazed by 634 animals from February 8 to March 7, 1996, and from December 22, 1996, to January 2, 1997. The Duff Flat Pasture would be grazed by 635 cattle from December 22, 1995, through February 7, 1996, and again from January 23, 1997, to March 7, 1997. The Verde River and proposed critical habitat are excluded from grazing by Windmill livestock by either fences or topographical barriers such as cliffs.

As noted previously, the nearest occupied habitat for the flycatcher is 1.2 miles from the southwestern boundary of the Windmill Allotment at the Tuzigoot Bridge. The Forest indicated during a September 18, 1995, telephone conversation that the occupied area is completely fenced to prevent access to the site by cattle from the Windmill Allotment. Cattle would be grazing in the adjacent Duff Flat Pasture from December 22, 1995, to February 7, 1996 and again from January 23, 1997, to March 7, 1997. Similarly, they would graze in the adjacent Cornville Pasture from January 22, 1996, to May 15, 1996, and again from October 15, 1996, to January 21, 1997. The Gyberg Pasture would be grazed for a two week period on an emergency basis only, and outside of the flycatcher breeding season.

While fencing of proposed critical and occupied habitat will prevent direct loss of vegetation by cattle grazing, the proposed action will likely adversely affect the flycatcher by increasing the number of cowbirds in the area. The Service believes that the proposed action will facilitate colonization of proposed critical habitat by cowbirds, and that colonization will decrease the suitability of that habitat for future expansion of flycatcher populations.

Human activities, such as livestock grazing and expansion of agriculture, have facilitated the expansion of the cowbird's range westward. Bock *et al.* (1993) found that 40 percent of the riparian bird species they examined, including the flycatcher (various subspecies), were negatively affected by livestock grazing. Klebenow and Oakleaf (1984) listed the flycatcher (*adastus* subspecies) among bird species that declined from abundant to absent in riparian habitats degraded in part by overgrazing.

As previously discussed, an additional, critical threat to the flycatcher is brood parasitism by the cowbird. Cowbirds lay their eggs in the nests of other species, directly affecting their hosts by reducing nest success. Historically, cowbirds were associated with bison (*Bison bison*) on the Central Plains and were uncommon in the southwestern United States. Cowbirds became increasingly widespread in the late 1800s and 1900s as human settlements and livestock operations spread across the Southwest (Hanna 1928, Gaines 1974, Mayfield 1977a).

Parasitism rates of up to 100 percent (proportion of nests parasitized) have been documented for the flycatcher in parts of Arizona (Sogge *et al.* 1993), further contributing to the decline of this species. To ensure the survival and recovery of the flycatcher, efforts to preserve and restore habitats and reduce the level of brood parasitism will be required.

Where studied, high rates of cowbird parasitism of the flycatcher have coincided with population declines, or, at a minimum, resulted in reduced or complete elimination of nesting success by the flycatcher. In California, parasitism rates ranged from 50 percent to 80 percent between 1987 and 1992, when the population decreased 27 percent (Whitfield 1990, Harris 1991, Whitfield and Laymon, Kern River Research Center, unpubl. data). A parasitism rate of 100 percent was documented for the flycatcher in the Grand Canyon during 1993, when no young were fledged (Sogge *et al.* 1993).

Steady reductions in nest success over time eventually lead to population declines, and, ultimately, extirpation. High parasitism rates of up to 83 percent resulted in the precipitous decline of the endangered Kirtland's Warbler (*Dendroica kirtlandii*) (Mayfield 1977b). Mayfield (1977a) speculated that a species (or population) might be able to survive a 24 percent parasitism rate, but that losses much higher than that "would be alarming." Populations experiencing the high rates of parasitism and low reproductive success observed in some populations of the flycatcher are considered population "sinks," and are maintained only through immigration from other "source" populations (Pulliam 1988). Robinson (1993), who documented a 76 percent parasitism rate for neotropical migrant species in three midwestern woodlands and a high population turnover rate, considered his sites to be population sinks, and speculated that annual population changes within woodlands reflected the availability of immigrants from outside the study area. The threat to the flycatcher by cowbird parasitism is underscored by high parasitism rates and low nest success documented in widely-separated breeding populations, and by a small, declining number of remaining birds. If populations throughout the range of the flycatcher are experiencing similar rates of brood parasitism and nest success as those documented in California and the Grand Canyon of Arizona, then a source of immigrants may not be available to maintain existing populations in the future, and the species will experience further declines.

Concentrations of livestock at tanks, corrals, nutrient supplements, and areas with extensive shade may increase the number of cowbirds in an area, and subsequently the amount of cowbird parasitism. Although the flycatcher has not been documented nesting within the project area, the Tuzigoot Bridge nesting area is within cowbird travel distance of the Duff Mesa, Duff Flat, and Gyberg Pastures. The Gyberg Pasture would only be used on an emergency basis and would not be used during the breeding season in any year. The Duff Flat and Duff Mesa Pastures would be grazed as late as March 7. It is not known how long cowbirds might remain in an area following the removal of cattle. It should be noted that the breeding season for cowbirds occurs earlier than that of the flycatcher, so that those cowbirds attracted to the area may already be preparing to lay eggs when flycatchers arrive.

The BAE notes that cowbirds are known to occur at various survey locations on the Coconino and Prescott National Forests in 1994, and have been sighted along Sycamore Canyon, the Verde River, Spring Creek, Oak Creek, Dry Beaver Creek, and Sheepshead Canyon during 1994 flycatcher surveys. Cowbirds occurred within non-riparian and riparian areas. The BAE further notes that cowbird parasitism of other bird species has been confirmed and recorded in the Dry Beaver Creek drainage during 1995 Breeding Bird surveys. The BAE states that during the flycatcher breeding season, cowbirds may opportunistically associate with livestock at the Dutch Kid, Gyberg Holding, and Well Unit Pastures, and may feed at the Gyberg Corral within an expected dispersal distance of cowbirds (approximately 7 kilometers or 4.2 miles) of the Tuzigoot site.

Research efforts in California indicate that cowbird parasitism could affect juvenile survivorship of flycatchers. Whitfield (1994) found that flycatchers that fledged earlier in the season had a higher survivorship than those fledged later in the breeding season. Whitfield also found that nests parasitized by cowbirds, on average, fledged young 12 days later than unparasitized nests, probably because the young were the result of a second nesting attempt. This demonstrates that, in addition to lowering overall nest success and reducing the numbers of young produced, cowbird parasitism has the more subtle impact of lowering juvenile survivorship.

The Service believes that indirect effects of the proposed activities will result in a decrease in potential for productivity at the Tuzigoot Bridge site by increasing the probability of nest parasitism by cowbirds. Even though cowbirds are found in the vicinity of Tuzigoot Bridge regardless of the proposed action, the proposed project is an additive factor, increasing the probability of parasitism of flycatchers at Tuzigoot Bridge. The Service listed the flycatcher as endangered because at current population levels, and with continuing threats, extinction is foreseeable. Thus, an increase in nest parasitism, and loss or modification of adjacent habitat for population expansion further jeopardize the continued existence of the flycatcher.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. Future Federal actions are subject to the consultation

requirements established in section 7, and, therefore, are not considered cumulative in the proposed action.

Some parcels of private land with livestock occur within cowbird travel distance of the known flycatcher nesting area. The increase in the cowbird population attributable to livestock grazing on private lands is not determinable at this time. According to Peaks Ranger District personnel, private landowners surrounding the Tuzigoot Bridge site do not graze cattle on the Windmill Allotment.

Future development within this watershed may adversely affect the riparian corridor. For example, the population of Clarkdale is projected to steadily increase from its 1990 size of 2,144 (U.S. Census Bureau, 1990) to 4,240 residents by 2010 (Averitt *et al.* 1990). Population growth within the entire Verde Valley is projected to increase from 33,830 in 1988 to 98,620 by the year 2030 (USFWS 1989b). With this increased growth, four-wheel drive and off-road vehicle use is anticipated to increase significantly. Water demands for municipal, industrial, and recreational use will expand and place a greater demand on the water resources on which the riparian corridor is dependent. Increased urban development will increase impervious surfaces within the watershed, escalating surface runoff into the Verde River and subjecting the riparian corridor to greater levels of pesticides and fertilizers.

The Verde Valley Ranch is a proposed housing development that will likely be constructed in the near future. The Ranch could potentially consist of residential units, light industrial, retail, business, and educational facilities. It is anticipated that up to 1,700 housing units could be constructed. Should this facility be constructed, it is anticipated that traffic over the Tuzigoot Bridge, which would be the primary access to the development, will be substantially increased.

CONCLUSION

After reviewing the current status of the flycatcher, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of a grazing permit for the Windmill Allotment, as proposed, is not likely to jeopardize the continued existence of the flycatcher or destroy or adversely modify its proposed critical habitat.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or

sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

AMOUNT OR EXTENT OF TAKE

The Service believes that the action as proposed will increase the probability of nest parasitism of the flycatcher by cowbirds which is likely to result in the take of one nest at the Tuzigoot Bridge for each year of the two-year permit issuance.

REASONABLE AND PRUDENT MEASURES

The Service believes that implementation of the following reasonable and prudent measures is necessary and appropriate to minimize take:

1. Ensure that cattle do not access habitat occupied by the flycatcher at Tuzigoot Bridge, or its proposed critical habitat.
2. Cooperate with the NPS to support on-going survey efforts for the flycatcher and in conducting a cowbird management program within the NPS right-of-way at Tuzigoot Bridge.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, the Forest must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

The following terms and conditions are required to implement reasonable and prudent measure 1:

- 1.1 Inspect fencing that excludes cattle from the Tuzigoot Bridge site prior to releasing cattle into the Duff Flat, Gyberg, and Cornville Pastures.

- 1.2 Make any necessary repairs to insure that cattle remain outside of the Tuzigoot Bridge breeding site prior to releasing cows into these pastures.
- 1.3 Conduct necessary repairs upon notification of any breaks in fencing, trespass of cattle onto private lands surrounding the Tuzigoot Bridge site, or presence of cattle within the flycatcher's proposed critical habitat.

The following terms and conditions are required to implement reasonable and prudent measure 2:

- 2.1 Cooperate with the NPS in continuing their flycatcher survey efforts along the Verde River at Tuzigoot Bridge. An agreement with the NPS for Forest participation within this effort should be reached prior to the onset of the breeding season during the first year of the permit.
 - a. Annual surveys conducted at the Tuzigoot site should follow methods specified in the flycatcher survey protocol (Tibbitts *et al.* 1994), as has occurred in the past.
 - b. In addition to the protocol, potential flycatcher locations should be surveyed at least once in each of the last two ten-day periods of May (i.e., survey each location at least once between May 11 and May 20, and at least once between May 21 and May 31).
- 2.2 In cooperation with the NPS and other management authorities, support, initiate, and maintain a cowbird trapping program by April 1, 1996, using established methodologies (enclosed). Continue annual trapping through the end of July, or until the flycatcher breeding season ends (if earlier than July 31) each year for the duration of the grazing permit.
 - a. Begin with a minimum of two traps, but add additional traps if additional locations of the flycatcher are determined during observations;
 - b. Check all traps at least once each day. Individual traps should be checked at approximately the same time each day;
 - c. Maintain data on the cowbird trapping program, including:
 - 1) date trapping is initiated and stopped;
 - 2) locations of traps (marked on a topographic map);
 - 3) variations from established protocol;
 - 4) number and sex of cowbirds and non-target species captured; and
 - 5) date of each capture.
 - d. Kill all cowbirds in a humane manner and dispose of the dead birds properly.

- 2.3 Report to the Service each year on the survey and trapping program.
- 2.4 Monitor for signs of nest parasitism such as cowbirds fledging from flycatcher nest(s). If parasitism does occur, reinitiate consultation with the Service to alter management or mitigation measures as needed.

NOTE: These activities should be carried out to the extent possible on the NPS easement. Caution should be exercised to ensure that no trespass of private lands occurs without specific permission from landowners.

CONCURRENCES

As noted previously, the Service does not concur with a finding of may affect, not likely to adversely affect for the flycatcher, but believes that the proposed action is likely to adversely affect the flycatcher. Similarly, the Service does not concur with the determination of no effect to proposed critical habitat for the flycatcher, but believes that the proposed project may result in some adverse effects to that habitat primarily through the presence of cowbirds; however, we do not have sufficient data at this time to support an adverse modification determination. While there would be no direct effects of grazing on proposed critical habitat due to cattle exclosures, the Service believes that the proposed action facilitates the colonization of proposed critical habitat by cowbirds. The presence of cowbirds within proposed critical habitat decreases the overall suitability of the area as habitat for the flycatcher.

As noted previously, a separate BAE was prepared for impacts of the proposed action on the spotted owl; however, this BAE requested only concurrence with the Forest's determination of may affect, not likely to adversely affect for the spotted owl and its critical habitat. The Service concurs with the Forest's determination of effects for the proposed action on spotted owl for the reasons listed below.

There are 36 spotted owl territories on the Windmill Allotment associated with the Mormon Lake and Peaks Ranger Districts, and the rugged north portion of the Sedona District. Thirty-five of the 36 owl territories fall under the programmatic BAE and meet the specified criteria for a "no effect" determination. The remaining spotted owl territory would be affected by trailing/gathering activities. Cattle are trailed between summer and winter range on the Mooney Trail which passes along portions of the northwest boundary of spotted owl protected activity center (PAC) 040225, and less than one-eighth mile from the edge of management territory (MT) core area 040606. The Forest states that most of PAC 040225 is accessible to cattle but that MT core area 040606 consists of steep canyon habitat, with little accessibility. No other territories are affected by trailing of cattle under this permit.

The BAE prepared by the Forest for the Windmill Allotment states that around June 1 of each year, 635 head of cattle are driven by riders on horseback partially through Mooney Canyon. Following an overnight rest, the cattle are driven to the top of the rim and through Buck Pasture

into either Lockwood or West Barney Pastures. It may take an additional day to drive remnant cattle out of Buck Pasture into these other pastures. The total time spent trailing averages two to three days. The same drive occurs in reverse in the fall, around October 15.

Nests for PAC 040225 have not been located, but potential nest sites are associated with nearby drainages which at their closest point are one-quarter mile from the trail and at their furthest point are one mile from the trail. Potential nest sites are topographically and vegetatively buffered from trailing activities, and MT core area 040606 is topographically protected from trailing activities and largely inaccessible to cattle. The BAE states that the duration of the drive past any particular nest site would be a matter of hours. Potential layover sites in Mooney Canyon are approximately one mile from the PAC and MT core area.

The Forest determined that the Windmill Allotment "may effect, but is not likely to adversely affect" the spotted owl due to trailing of livestock through the edge of PAC 040225. In a separate letter dated August 22, 1995, the Forest provided a detailed analysis of the Windmill Allotment with regards to specified management considerations for spotted owl critical habitat. This analysis indicates that the allotment contains the primary constituent elements for the spotted owl, designated spotted owl critical habitat, and riparian areas. The Forest determined that the issuance of the short-term permit for the Windmill Allotment would result in a "may effect, not likely to adversely affect" for spotted owl critical habitat.

It is the opinion of the Service that only the spring cattle drive has the potential to affect spotted owl as the fall drive is outside the breeding season. Because potential nest sites for PAC 040225 and MT core area 040606 are topographically buffered from the trail activities, and given that the trail activity will be short-term, the Service believes that disturbance related to this activity will be minimal, and no adverse effects are expected to the species. The Service therefore concurs with the determination that the issuance of the permit for the Windmill Allotment "will not adversely affect" the spotted owl.

The Service provided information to append the Forest's April 7, 1995, programmatic BAE on August 4, 1995. This letter states that the Service concurs that any Forest grazing allotment permits issued using the described assessment method, and meeting the specified management conditions indicated as a result of that assessment, would not have to seek further concurrence from the Service for determinations of "not likely to adversely affect" for critical habitat for the spotted owl.

The Forest states that issuance of the permit complies with the Service's August 4, 1995, recommendations for amending the Forest's April 7, 1995, programmatic BAE and therefore will not adversely affect spotted owl critical habitat. The reasons for this determination are as follows: 1) The environmental assessment documents a commitment to monitoring. Monitoring will include forage utilization over the duration of the permit with the goal of achieving the herbaceous and woody species composition necessary for meeting the needs of the spotted owl and its prey for the life of the permit. If interagency review of the monitoring results reveal that the goal is not being met, project-level consultation will be initiated; 2) Voles are not considered

a significant portion of the diet of spotted owls currently or potentially residing in the area because of elevation, the significant number of canyons and rocky terrain which provide habitat for other prey species, and due to the large percentage of suitable pine/Gamble oak (*Quercus gambelii*) habitat which is not typically associated with voles, and; 3) Conflict between spotted owl PACs and salt placement is not expected due to the high basal area and tree density, relatively steeper slopes and generally low forage production of spotted owl habitat. The Forest states that the details of salt placement and the avoidance of PACs will be discussed with the permittee in the next annual meeting before livestock go into the spring/summer range. In addition, the Forest states that no livestock concentrations or corrals are located in PACs or MT cores (pers. comm. H. Green).

Based on the above clarifications specific to the Service's August 4, 1995, letter, the Service can concur with the determination that the issuance of the permit for the Windmill Allotment "will not adversely affect" spotted owl critical habitat.

CONFERENCE REPORT

After reviewing the current status of the flycatcher, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's conference opinion that issuance of a two-year grazing permit for the Windmill Allotment is not likely to destroy or adversely modify proposed critical habitat.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Contact the Prescott National Forest, Chino Valley and Verde Ranger Districts and encourage them to develop methods for ensuring that cattle do not use the Verde River riparian corridor, particularly in the area of the Tuzigoot breeding site, during the flycatcher breeding season.
2. Forego the use of pastures with riparian or aquatic resources to reduce the effects and foster recovery of these areas for flycatcher habitat.
3. Establish a partnership with private landowners of property surrounding the Tuzigoot site and extend cowbird trapping efforts onto private property as appropriate for protection of breeding flycatchers at the Tuzigoot site.

4. Acquire additional suitable or potential flycatcher habitat in the Verde River watershed and implement management plans to maintain or recover habitat, reduce disturbance, and reduce brood parasitism by cowbirds, or implement these management plans on any such habitats already in possession of the Forest.

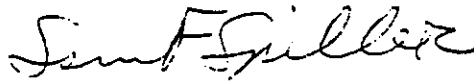
In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the request for formal consultation. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

In future communications on this project, please reference consultation number 2-21-95-F-399. If we can be of any additional assistance, please contact Mary Richardson or Tom Gatz.

Sincerely,



Sam F. Spiller
State Supervisor

Enclosure

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (AES)
Field Supervisor, Fish and Wildlife Service, Carlsbad, CA
Field Supervisor, Fish and Wildlife Service, Ventura, CA
State Supervisor, Fish and Wildlife Service, Albuquerque, NM
State Supervisor, Fish and Wildlife Service, Austin, TX
State Supervisor, Fish and Wildlife Service, Salt Lake City, UT
Assistant State Supervisor, Fish and Wildlife Service, Grand Junction, CO
District Ranger, Sedona Ranger District, Sedona, AZ
District Ranger, Peaks Ranger District, Flagstaff, AZ
District Ranger, Mormon Lake Ranger District, Flagstaff, AZ
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